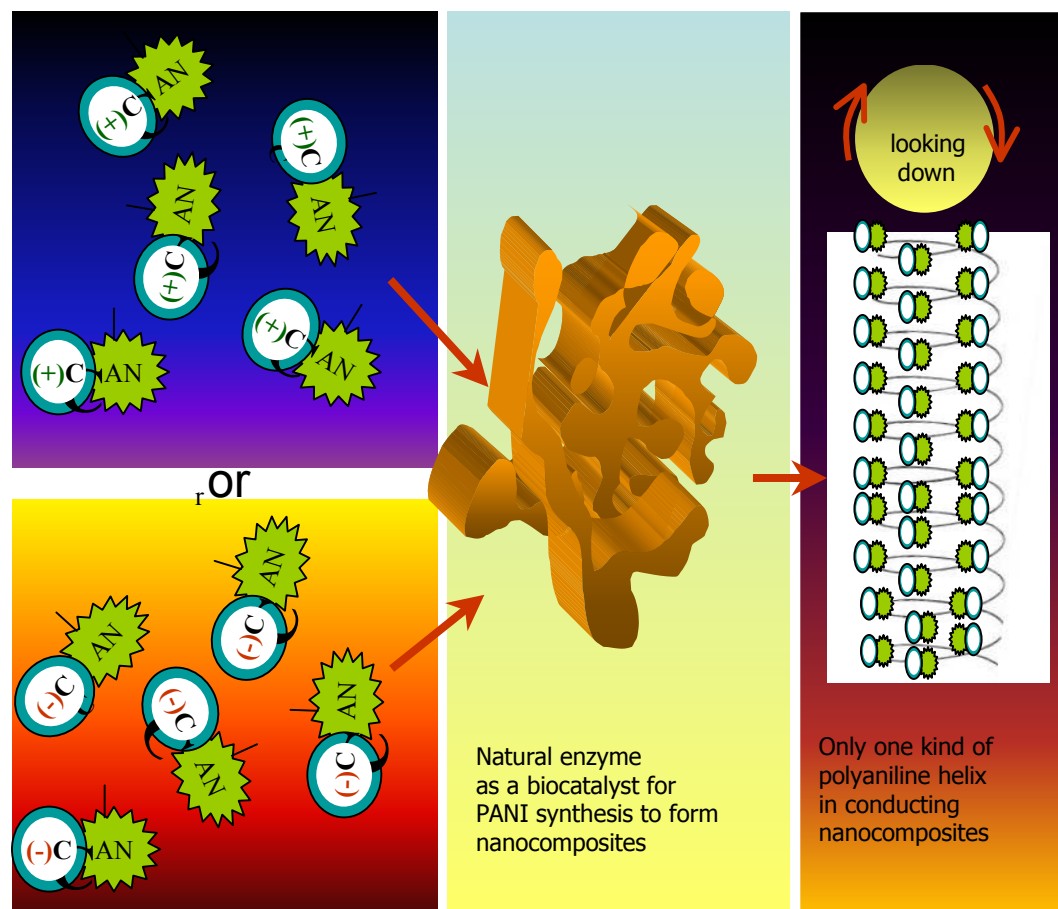


# Structural Investigation of Molecularly Engineered Polymers Prepared by Enzymatic Polymerization

Ashok Cholli, University of Massachusetts Lowell, DMR-9986644

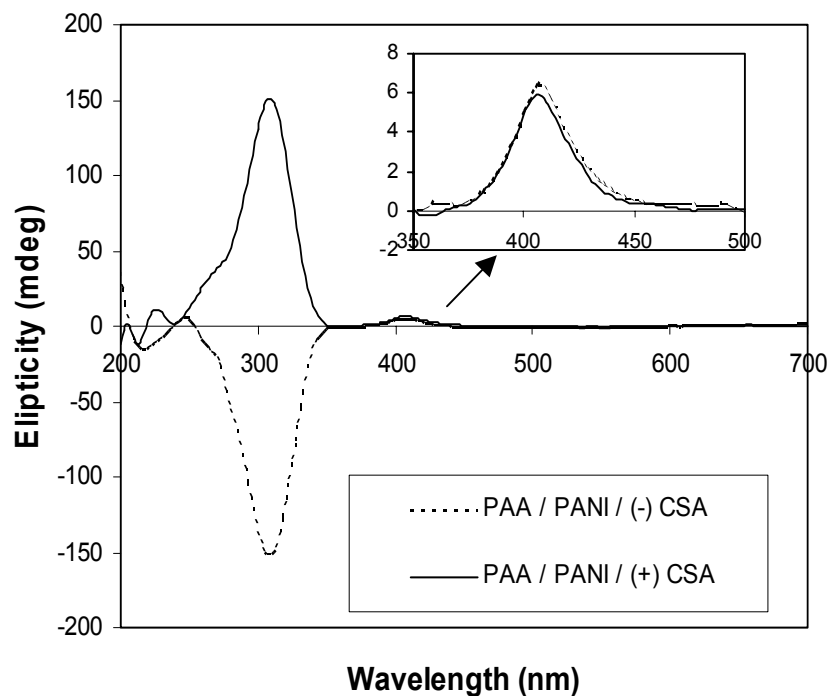
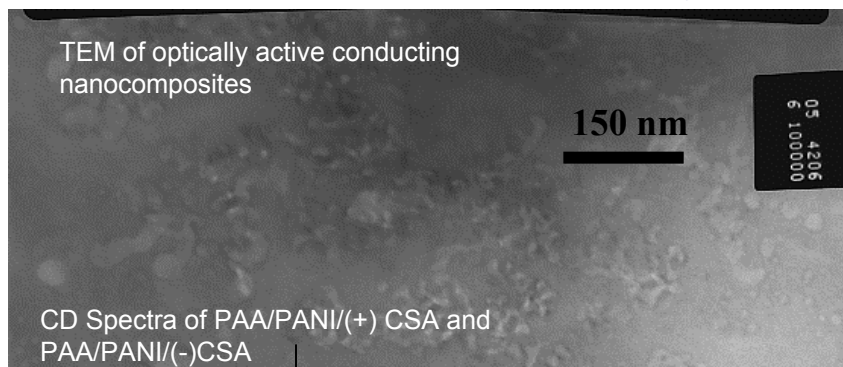
There is a need today to find alternative methods for the synthesis of polymers that are used in technological applications especially in photonics and electronics. A **new technological** and **Green Chemistry** approach is therefore needed which is environmentally friendly and cost effective in synthesizing electro- and opto-active polymers. Here we present a one-step **enzymatic synthesis** of phenols and aniline monomers. The conducting polymer nanocomposites PANI/PAA/ (+/-) CSA were also synthesized in which the helical handedness of PANI chains are controlled by the biocatalyst, HRP.

A total of **12** peer reviewed papers have been published based on research work funded by NSF.



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## Education

Three graduate students, Peng Xu, Vijayendra Kumar, and Ashish Dhawan have contributed to this work. Post-doctoral fellows. Drs. Sangrama Sahoo and Muthiah Thiyagarajan have also contributed to this project.

## Community Out Reach

High school students from regional schools, D. Sok, D. Patel, S. Chakraborty, and Bao, have spent their summer in learning Green Chemistry and gaining hands-on laboratory skills.

← *J. Am. Chem. Soc.*, 125,11502, 2003